Cypripedium taibaiense (Orchidaceae), a New Species from Shaanxi, China

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ABSTRACT. *Cypripedium taibaiense* G. Zhu & S. C. Chen, a new species from Taibai Mountain in Shaanxi, northwestern China, is described and illustrated. The species belongs to section *Cypripedium* subsection *Macrantha* (Kränzlin) Cribb. It resembles *C. yunnanense* Franchet in having small flowers but differs from it in having ovaries pubescent at least along the ribs, oblong staminodes almost twice as long as wide, untwisted petals, and in having dorsal sepals elliptic-lanceolate more than twice as long as wide.

During a recent trip of the senior author to China in 1998, several plants of *Cypripedium*, which were said to have been collected from the provinces of Gansu and Shaanxi in northwestern China, were bought from a floral market in Beijing. Among the already withered and poorly preserved flowers, one was still distinguishable and did not seem to be any known species of the genus. This plant was brought to the Institute of Botany, Chinese Academy of Sciences, for study. It does not match any species already described but is identical with several unidentified specimens in the PE herbarium, which were collected from Taibai Mountain in Shaanxi, China. The features of single purple flower, villose ovaries, alternate ovate leaves, and staminode nearly sessile indicate that these specimens belong to the section *Cypripedium* subsection *Macrantha* (Kränzlin) Cribb. The specimens were compared with species of wide distribution or those found in neighboring provinces in the subsection *Macrantha*, namely, *C. franchetii* Rolfe (Gansu, Shanxi, Shaanxi, Henan, Hubei, and Sichuan), *C. micranthum* Franchet (Heilongjiang, Jilin, Liaoning, Inner Mongolia, Hebei, Shandong, and Taiwan), *C. smithii* Schlechter (Sichuan and Yunnan), *C. tibeticum* King ex Hemsl. (Gansu, Sichuan, Guizhou, Yunnan, and Tibet), and *C. yunnanense* (Sichuan, Yunnan, and Tibet). The comparison indicated that the specimens belong to a new member of the subsection. This undescribed species is superficially similar to *C. franchetii*, but differs in having much smaller flowers and less pubescent ovaries. It resembles *C. yunnanense* Franchet in its small flowers, but differs in having ovaries with pubescence at least along the ribs, oblong staminodes almost twice as long as broad, untwisted petals, and in having dorsal sepals elliptic-lanceolate more than twice as long as wide.

Cypripedium taibaiense G. Zhu & S. C. Chen, sp. nov. TYPE: China. Shaanxi: Taibai County, Taibai Mountain, 3300 m, 4 July 1959, *J. X. Yang 629* (holotype, PE). Figure 1.

Inter species subsectionis *Macranthorum* flore parvo ad *Cypripedium yunnanense* accedens sed ovario pubescenti, petalis non tortis, staminodio oblongo 1–1.1 cm longo, 5–6 mm lato subduplo longiore quam latiore, sepalo dorsali longiore quam latiore.

Terrestrial herb, 13–15(–24) cm tall, with stout rhizome 4–5 cm long and 4–5 mm thick. Stem glabrous, bearing 2–3 sheaths at base and 3–4 leaves well spaced above pointing upward. Leaves elliptic or elliptic-lanceolate, 4.5–11 cm long, 2.8–3.5 cm wide, acuminate or subacute, sheathing and amplexicaul at base, glabrous above, minutely pubescent or glabrescent beneath, ciliate. Inflorescence terminal, 1-flowered; peduncle 3–7(–10) cm long, minutely pubescent; bract narrowly elliptic or narrowly elliptic-lanceolate, 6–6.5 cm long, 1.8–2.2 cm broad, acuminate, minutely pubescent on both sides or glabrescent above, ciliate on margins. Pedicel and ovary 1.7–2 cm long, pubescent at least along the ribs; flower 4–4.5 cm across, purple-red; dorsal sepal elliptic-ovate, 2.2–3 cm long, 1.3–1.5 cm wide, acuminate, glabrous; synsepal ovate-elliptic to narrowly elliptic, 2.2–2.8 cm long, 1–1.2 cm wide, bifid at apex, glabrous; petals lanceolate, 2.6–3 cm long, 7–9 mm wide, villose in basal half of adaxial surface; lip deeply pouched, obovate-subglobose, 2.5–3 cm long, 1.5–2 cm broad, pu-

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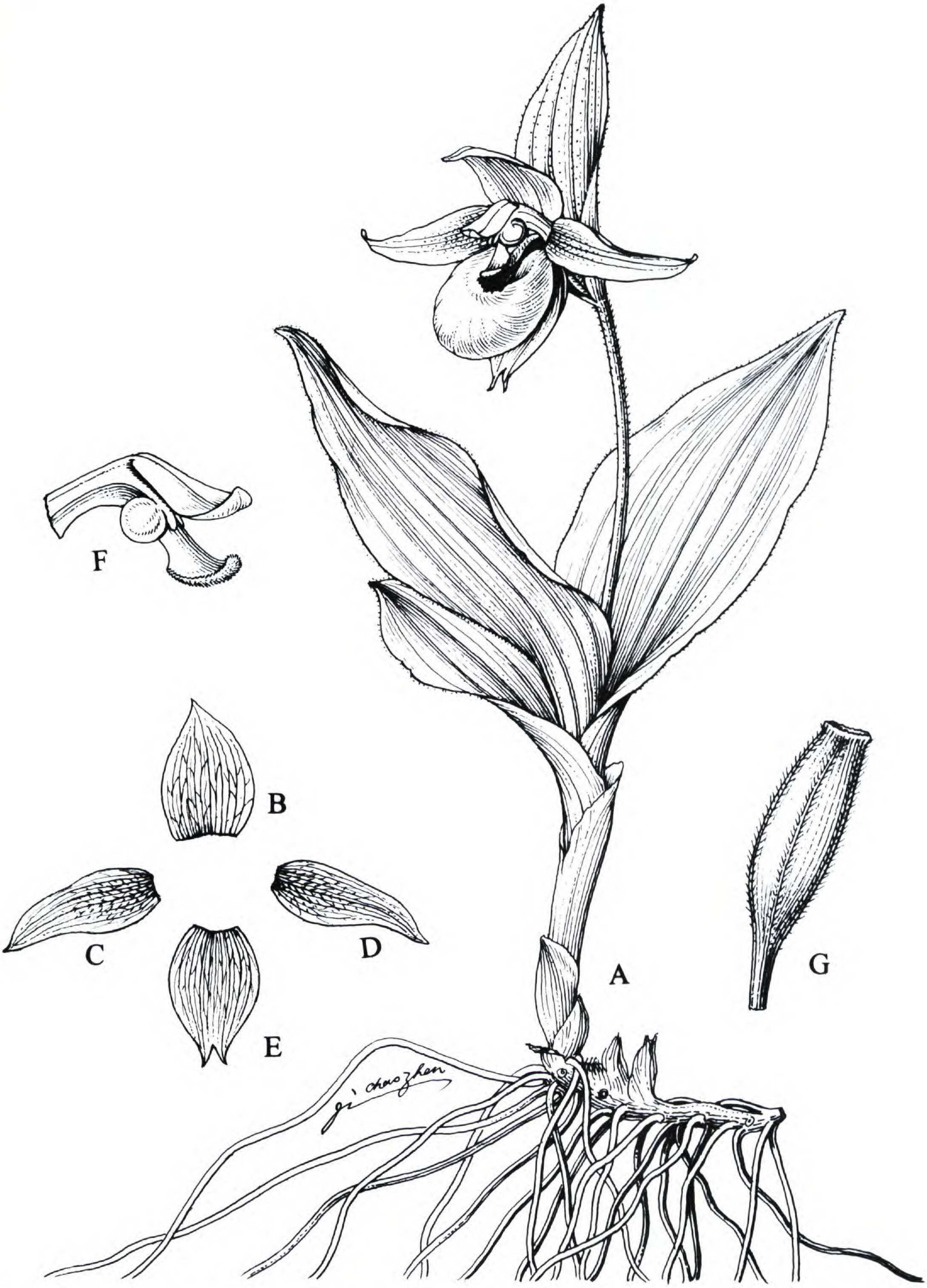

Figure 1. Line drawing of the type by Ji Chaozhen. —A. Plant ×1. —B. Dorsal sepal ×1. —C. Petal ×1. —D. Petal ×1. —E. Synsepal ×1. —F. Column ×2. —G. Ovary ×3.

bescent inside, glabrous outside, with mouth ca. 1.2–1.4 cm across; staminode oblong, 1–1.1 cm long, 5–6 cm wide, longitudinally grooved along the midrib, carinate beneath, mucronate at apex; filaments linear, 3 mm long. Flowering from June to July.

Cypripedium is mainly a temperate genus, consisting of about 45 species (Cribb, 1997) distributed largely in eastern Asia and North America. Over two-thirds of the species, about 32, are found in China (Chen & Xi, 1987; Chen & Tsi, 1998). Many species in the genus are of horticultural importance, attracting worldwide attention due to their large and showy flowers. Some are also of phytogeographic significance, several pairs of vicarious species being disjunctly distributed in eastern Asia and eastern North America (Chen, 1983a). Although this interesting genus was recently revised by Cribb (1997), field studies are still needed, particularly on the poorly known Chinese species. Among the currently recognized species from China, many, such as *C. wardii* Rolfe, *C. farreri* W. W. Smith, *C. micranthum*, *C. fasciolatum* Franchet, *C. palangshanense* T. Tang & F. T. Wang, *C. yunnanense*, and *C. smithii*, are known from only a few or single collections. A number of new species have been described from China in recent years, namely *C. shanxiense* S. C. Chen (Chen, 1983b), *C. wumengense* S. C. Chen (Chen, 1985), *C. subtropicum* S. C. Chen & K. Y. Lang (Chen & Lang, 1986), *C. forrestii* Cribb (Cribb, 1992), *C. lichiangense* S. C. Chen & Cribb (Cribb & Chen, 1994), and *C. ludlowii* Cribb (Cribb, 1997). The new species is the only member of the genus currently known from Shaanxi Province in China. As the remote regions of Shaanxi and neighboring Gansu Province contain many suitable habitats for *Cypripedium* species, such as mixed deciduous forest and mossy and grassy slopes and bogs, it is likely that more undescribed species will be discovered if more herbarium material from those regions becomes available.

Paratypes. CHINA. **Shaanxi:** Taibai County, Taibai Mountain, grassy slopes, 2600–3300 m, *S. F. Li 91009* (MO, WUK), *T. P. Wang 1698* (PE, WUK), *J. X. Yang 581* (PE, WUK), *J. X. Yang 885* (PE, WUK).

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